

Notice of Allowability

Application No.

09/752,834

Examiner

Taylor Victor Oh

Applicant(s)

FROOM ET AL.

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/1/2004.
2. ☒ The allowed claim(s) is/are 1-11 and 13-15, renumbered as claims 1-14.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Reasons for Allowance

1. The following is an examiner's statement of reasons for allowance:

- the rejection of claim 1 under 35 USC 112, first and second paragraphs has been withdrawn due to the modification made in the amendment;
- The close references for the current invention are Atkins et al (EP 0757027) in view of Nishino et al (Toku-Kai-Hei 7-71907) and Sato (U.S. 4,465,852).

The main feature of the current invention is that the removal of metallic impurities from the feed stock prior to the actual process provides a surprising result in the catalyst life and the ester productivity.

Atkins et al teaches a process for the synthesis of esters by reacting an olefin, such as ethylene with acetic acid in the presence of the heteropolyacid catalyst on a siliceous support derived from synthetic silica, wherein an amount of water in the range from 1 to 10 mole % based on the total reactants is added to the concentric tubular reactor. Furthermore, the siliceous support is free of extraneous metals or elements having a less than 0.3 %w/w (3000 ppm).

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Nishino et al teaches an apparatus of producing ethyl acetate by reacting ethylene and acetic acid in the presence of a heteropolyacid catalyst in the connected concentric three or to five long tubes as reactors have each insulated layers of catalysts.

Sato teaches a process for producing carboxylic acid esters by reacting olefins with carboxylic acids in the presence of a media containing a heteropolyacid using ion exchange resins.

The instant invention, however, differs from the prior art in the followings: the Atkins et al process requires the presence of water to enhance the yield of the desired ester in a singular reactor, whereas the claimed invention takes no importance of adding water to a plurality of reactors in series ; furthermore, the Atkins et al process allows the impurities of extraneous metals or elements in the catalyst to be a less than 3,000 ppm, whereas the claims require the feedstock free from metallic impurities (a less than 0.1 ppm) prior to the contact with the catalyst for the process; therefore, there is no motivation for the skilled artisan to reduce the impurity from 3,000 ppm to 0.1 ppm in the feedstock. Moreover, the specification on pages 10-11 has shown an unexpected result regarding the low deactivation rate of the catalyst when the impurity in the feedstock is 0.6 ppm in comparison with 2.9 ppm: for example, in examples 1 and 2, when the feed stock contains 2.9 ppm calcium impurity , the reaction temperature drops from 10.6 to 2.4⁰ C as time passes from 200 hrs to 400 hrs ,but when the feed stock contains 0.6 ppm calcium impurity , the reaction temperature drops slightly from 12.4 to 10.6⁰ C as time passes from 650 hrs to 850 hrs. The slow declination of the temperature in the catalyst system

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indicates the low deactivation of the catalytic activity. In addition, unless all limitations of the claims are met, there is no prior art rejection. See In re Zurko 59 USPQ 2d 1690 (Fed Cir. 1991) and In re Lee, 61 USPQ 1430 (Fed Cir. 1991).

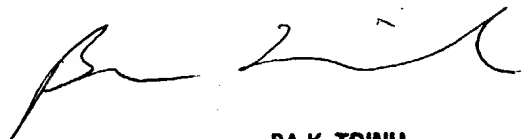
Therefore, applicants' claimed subject matter would not have been obvious to the person with an ordinary skill in the art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning the communication after allowance such as sending all post-allowance correspondence should be directed to "Box Issue Fee" or faxed directly to PUBS at 703-305-8755. This will expedite the process of these papers.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 24/04



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